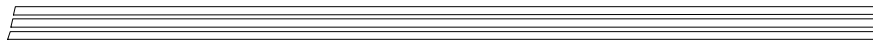




Impacts of the Houston State Implementation Plan on the Port of Houston Authority and the Maritime Industry

Wade Battles, Managing Director
Port of Houston Authority



Topics Outline

- Port of Houston Overview
- Houston's Air Quality Status
- Maritime NOx Emission Contribution
- SIP Development History
- Initial Maritime Measures
- Final Maritime Measures
- Voluntary Measures
- Current Status



Port of Houston Overview

- #1 in Foreign tonnage
 - #2 in Total tonnage
 - Over 7,000 Ocean Going Vessel Movements per year
 - Over 100,000 Towboat Movements per year
 - 8th Largest Port in the World
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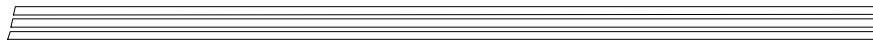
Houston's Air Quality Status

- 8 County Attainment Area
 - 70% of US Refinery & Petro Chemical Capacity
 - Severe Nonattainment for Ozone
 - NO_x Emissions Critical
 - 39 Exceedences in CY 2000
 - Area Reduction: ~1,000 tpd NO_x
 - Attainment Date: 2007
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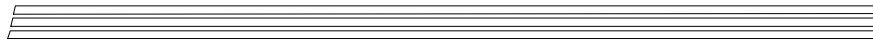
Maritime NO_x Emission Contribution

- Total Commercial Vessel Emissions 34 tpd
 - Harbor Vessels: 4 tpd
 - Towboats: 10 tpd
 - OGVs: 20 tpd
- Port Wide Nonroad Inventory: 5 tpd



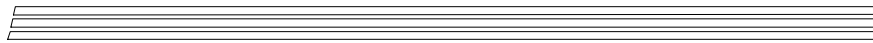
SIP Development History

- Regional Air Quality Planning Committee Technical Group Formed to Develop SIP Measures--Dec 1998
- Specific Maritime Measures Considered Dropped from the List
- TNRCC Modeled Results Showed a 100 tpd NO_x “Gap”--June 1999
- This Model Included Construction Shift and 90% Reduction in Stationary Sources



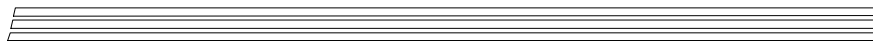
SIP Development History (cont.)

- MPO formed onroad/offroad Committees to Develop VMEPs totaling 24 tpd--Summer 1999
- List included Diesel Emulsions, SCR, car pooling commitments, etc.
- TNRCC “Took” List and Incorporated Measures into the SIP for the 100 tpd Gap
- New List Termed “the Kitchen Sink”--Dec 1999



Initial Maritime Measures

- “Construction” Ban
- All Tier II/III Engines by 2007
- Diesel Emulsions
- Selective Catalytic Reduction
- Restriction on OGV Startup and Shutdown
- Low Sulfur Diesel
- Tug/Tow Operation Restrictions
- Specification of Fuel Type for OGVs
- Engine Standards Specified for Port Equipment



Other “Sharing the Pain”

Measures

- 90% Reduction for Stationary Sources
 - No Drive Days every 4th Day
 - No Landscaping before Noon
 - Mandatory Vehicle Scrapage
 - Inspection and Maintenance Program
 - Reduction of Speed Limit to 55 mph
 - Ozone Eating Air Conditioners
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Kitchen Sink

- Kitchen Sink List Submitted for Public Comment--Winter 2000
 - Public Hearing--6:30 p.m. to 1:30 a.m.
 - EPA Comments: Many Measures were Pre-Empted and Technologies Not Proven
 - MPO Goes Back to Work Developing new VMEP's with an Outside Consultant
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Construction Ban!

- No Terminal Equipment could be Operated between 6am & Noon
 - No Ships could be Worked
 - No Cargo could be Handled
 - No Trucks could be Processed
 - Huge Safety & Economic Issues
 - Bottom Line was we showed that it actually Increased NOx
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Air Maritime Working Group

- PHA Developed Group to Fight Construction Shift and Kitchen Sink List & Develop Alternative Plan
 - Representatives from Steam Ship Lines, Stevedores, and Tug/Tow Operators
 - Presentation to TNRCC Commission on the Catastrophic Impact of the Construction Shift on the Industry
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Final SIP Maritime Measures

- Final SIP Adopted on December 6, 2000
- Included Construction Shift for Maritime Industry
- Replacement of all Engines with Tier II/III by 2007
- SCR and Diesel Emulsions Moved to “Enforceable Commitments for Mid-Course Correction

Voluntary Measures for Maritime

- MPO Selected VMEPs w/o Consulting Affected Parties
- Total of 24 tpd--Maritime Received 5.5 tpd
- Measures Included:
 - Slowing OGVs from 12 to 10 knots
 - Retrofits of OGV Propulsion Engines
 - Retrofits of OGV Generator Engines
 - Tug/Tow Retrofits

Current Status

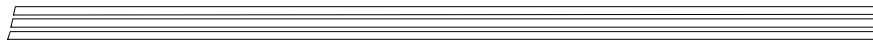
- PHA to Develop MOU with TNRCC to be Released from Construction Shift (1.2 tpd)
 - MOU will Allow PHA to Reveal Measures without Placement in Mid-Course Correction
 - VMEP Committee Formed at MPO to “Flush Out” Measures by March 2001
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Current Status (cont.)

- 4 Lawsuits Filed by Construction Industry, Oil and Gas Association, and Chemical/Refineries/Power Plants
 - Texas Legislature Considering Bill “Texas Emission Reduction Program (TERP)”
 - TERP to Include Carl Moyer’s Program for Replacement of Construction Shift
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P.H.A. Next Steps

- Negotiate Alternative to the Construction Ban with the TNRCC
- Develop Realistic VMED Program
- Continue to Experiment with Various Fuel Additive Programs
- Pursue Shore Power Alternatives
- Investigate Fuel Cell Technology





PORT OF HOUSTON AUTHORITY

www.portofhouston.com

